

**ABSTRACT OF THE DISCLOSURE**

An array of high aspect openings enables fast and accurate measurement of incidence angle deviation and/or beam divergence. The high aspect ratio assures that only ions of a predefined small incidence angle range may reach a conductive detection surface, thereby  
5 allowing efficient control of the ion beam parallelism by maximizing the beam current through the high aspect ratio openings. Moreover, if the array of openings is provided with individual beam current measurement points, spatially resolved intensity measurements may be performed that allow estimation of the beam shape. Thus, a movable Faraday cup assembly may be replaced with the stationary array of high aspect ratio openings, thereby  
10 improving tool reliability.